ASME Standards Plans for Offshore Oil and Gas Application

BSEE Domestic and International Standards Conference: Offshore Standards Update

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Overview

- ASME plans to continue to develop Codes, Standards and Conformity Assessment programs in response to the need of stakeholders, including API and BSEE.
- ASME works with other standards developing organizations, such as API, to avoid overlap and duplication in standards.

Revisions to B31.8 – Gas Transmission & Distribution Piping Systems

Technical Revisions to 2012 Edition

- ✓ Hazard analysis for offshore compressor stations
- ✓ Added reference to API RP 14C and API RP 14J
- ✓ Revised offshore hydrotest pressure for risers and platform piping
 - *addresses defect critical stresses
- ✓ Will be included in 2014 edition

Revisions to B31.8 — Gas Transmission & Distribution Piping Systems (continued)

Planned Revision for Future Editions

- ✓ Pipeline Reliability Based Design and Assessment (RBDA)
 - ❖ An ongoing B31.8 objective is to include RBDA into National Pipeline Codes. The ASME B31.8 Committee has deferred inclusion of the previously drafted RBDA Appendix and support documents until a validation exercise has been completed. This will validate the design approach and identify potential gaps or inconsistencies in the proposed design process.

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Proposed new ASME piping standard, ASME B31D

- Standards development is underway for a new ASME piping standard, ASME B31D, Design of Piping Systems for Dynamic Loads from Fluid Transients, to address the mitigation of significant damage in piping facilities. Additional information is being sought regarding pressure surges that can potentially damage piping systems due to the effect of sudden valve closures.
 - ✓ This will have direct application to the requirements of ASME B31.3, B31.4 and B31.8, all used for offshore platforms

Mechanical and Acoustic Vibration in Compressor Station Piping Systems

- Action is underway to address criteria in ASME B31.8 for the design and analysis of piping systems subject to mechanical and acoustic shaking forces that can result in deleterious vibration in compressor station and facility piping. The value of this project to ASME is:
 - ✓ to provide the technical basis for the incorporation of requirements into the Code that can be used to identify design and operational issues to addresses fatigue issues in and mitigate failure of compressor station piping systems.
 - ✓ to advance B31.8 to capture current industry practice.

Need for Revisions to ASME Section VIII, Division 3

- Fracture Mechanics solutions in API 579-1/ASME
 FFS-1 do not cover some components with a large OD to ID ratio.
 - ✓ Workarounds are available for the short term and ASME has initiated a project to develop the necessary solutions.
- The effects of aggressive environments on fatigue crack growth rates and subcritical crack growth are not quantified.
 - ✓ Div. 3 provides methodology that can be used to determine crack growth rates and the threshold for subcritical crack growth for any material environment combination, but the Code User must do the expensive and time consuming tests.
 - ✓ A JIP should be established to develop the necessary data for typical oil and gas applications.

Need for Revisions to ASME Section VIII, Division 3 (continued)

- True stress/true strain data, including cyclic data, are needed for higher strength materials.
 - ✓ The current Div. 2 and Div. 3 approach is conservative.
 - ✓ A JIP is needed to develop the data.
- Participation by experts from the offshore oil and gas industry should continue to participate in the ASME Subgroup on High Pressure Vessels to identify modifications and enhancements to the Code to meet their needs and to draft material for consideration by the Subgroup.